



# MQM HIGHLIGHTS

*A Report from the Medicare Quality Monitoring System*

## Acute Myocardial Infarction, 1992-2001

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Heart disease is the leading cause of hospitalization and death in the U.S. among persons age 65 and older. Acute myocardial infarction (AMI), more commonly known as heart attack, accounted for more than 321,000 hospitalizations among Medicare beneficiaries in 2001—about 10 per 1,000 beneficiaries. During the 1990s, patients who arrived at the hospital soon after experiencing AMI symptoms were more and more likely to receive reperfusion therapy in which medication or balloons were used to break up clots in heart vessels. Possibly as a consequence, post-AMI survival improved through the mid-1990s and perhaps beyond. Indeed, a recent study found that the quality of hospital care provided to beneficiaries with AMI improved substantially between 1998 and 2001. The authors noted, however, that opportunities for significant further improvements remain.<sup>1</sup>

This report presents trends in AMI hospitalization, readmission, and mortality rates from 1992 through 2001 among Medicare fee-for-service (FFS) beneficiaries. The findings are based on analyses of all Medicare claims for hospital discharges with AMI as the primary diagnosis. We calculated age-sex adjusted trends in rates over time and variation in rates across demographic groups.

### RESULTS

The AMI hospitalization rate increased by 8 percent in the overall Medicare FFS population from 1992 through 2001. The increase was far greater among African American beneficiaries and those age 80 and above (Figure 1 and Table 1).

#### Evidence of Improvement

**Mortality rates fell.** The 30-day mortality rate for all Medicare FFS beneficiaries combined fell by about percent from 1992 through 2001, while the one-year mortality rate dropped by 9 percent from 1992 through 1997 and leveled off after that point (Figure 2).

**Figure 1. AMI hospitalization rates for white and African American beneficiaries, 1992-2001**



**Table 1. AMI hospitalization rates per 1,000 FFS Medicare beneficiaries, 1992-2001**

Group	1992	2001	% Change
Male	11.5	12.1	5
Female	7.1	8.0	12
White	9.2	9.8	6
African American	7.2	9.2	29
Other race	7.3	9.4	16
Age < 65	5.1	5.1	1
Age 65-79	8.5	8.4	-1
Age 80+	13.2	16.6	26
Dually enrolled	11.1	13.8	24
Not dually enrolled	8.8	9.1	3

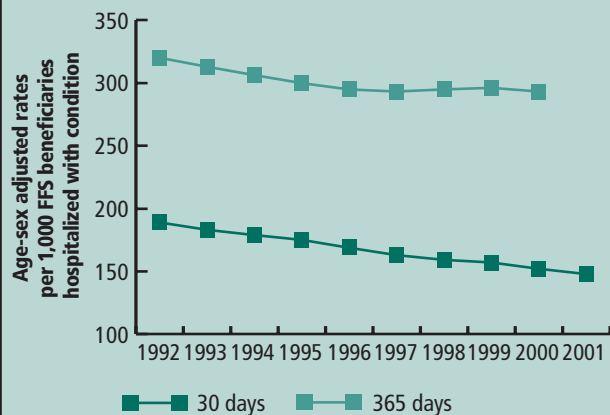
NOTE: Rates are adjusted for differences in age and sex.

#### Opportunities for Improvement

**Reductions in mortality were uneven.** The 30-day mortality rate fell less sharply for nonwhites, dually enrolled beneficiaries, and beneficiaries age 80 and above than for other beneficiaries (Table 2).

**Readmission rates reflect racial disparities.** The 30-day AMI readmission rate decreased by 13 percent for whites but *increased* by 17 percent for African Americans over the period (Table 2).

**Figure 2. AMI mortality within 30 days and 365 days after admission, 1992-2001**



**Table 2. Percent change in readmission and mortality rates per 1,000 FFS beneficiaries hospitalized for AMI, 1992-2001**

Group	30-day AMI readmission	30-day mortality	One-year mortality
Male	-12	-20	-8
Female	-9	-24	-8
White	-13	-24	-11
African American	17	-10	4
Other race	-8	-13	2
Age < 65	-8	-23	-10
Age 65-79	-19	-25	-11
Age 80+	12	-17	-5
Dually enrolled	2	-16	-2
Not dually enrolled	-13	-24	-12

NOTE: Rates are adjusted for differences in age and sex.

## IMPLICATIONS

Observed trends in AMI outcomes between 1992 and 2001 suggest that reductions in mortality were uneven across subpopulations of Medicare beneficiaries. The decline in 30-day mortality in particular was substantially smaller for nonwhites, dually enrolled beneficiaries, and those aged 80 and older. The three groups experienced not only the mildest declines in mortality, but also the sharpest rise in admission for AMI over the period.

These results are certainly consistent with unequal improvement in the quality of care provided to distinct subgroups of the population. However, there is also fragmentary evidence that the severity of AMI patients at admission has changed over time as well. Triplett and Berndt (1999) conclude that "... something has reduced the number of heart attacks that cause death before hospitalization and

presumably has also reduced the severity of cases that are hospitalized."<sup>2</sup> If severity at admission has indeed declined over time, and if the decline is unequally distributed across subgroups of the population, then unequal improvements in outcomes are likely to be the result of some combination of unequal access to high-quality care and unobserved changes in severity at admission. Resolving this issue requires a level of risk adjustment that was beyond the scope of this study.

## NOTES

<sup>1</sup>Jencks, Stephen, Edwin Huff, and Timothy Cuerdon.

"Change in the Quality of Care Delivered to Medicare Beneficiaries, 1998-1999 to 2000-2001." *Journal of the American Medical Association*, vol. 289, no. 3, January 15, 2003, pp. 305-312.

<sup>2</sup>Triplett, Jack E., and Ernst R. Berndt. "New Developments in Measuring Medical Care." In Triplett, Jack E. (ed.) *Measuring the Prices of Medical Treatments*. Washington, DC: Brookings Institution Press, 1999.

## ABOUT MQMS

The Medicare Quality Monitoring System (MQMS) is a data collection, analysis, and dissemination system through which the Centers for Medicare & Medicaid Services (CMS) monitors the quality of care delivered to Medicare fee-for-service (FFS) beneficiaries. Launched by CMS in 2003 in response to growing public concern about patient safety, patient choice, and provider accountability, MQMS provides national- and state-level statistics on the trends and variations in FFS beneficiaries' use of health care, outcomes of that care, preventable hospitalizations, and patient safety. These MQMS measures of quality act as input for high-level policy making and program planning within CMS.

Specifically, MQMS quality measures include the following:

- Preventable hospitalizations
- Patient safety indicators
- Mortality and readmission rates, length of stay, and cost of hospitalizations for acute myocardial infarction, heart failure, and stroke
- Preventive services and rates of complications for diabetes
- Mortality and readmission rates following cancer- and cardiac-related high-risk surgical procedures

Most of the measures are based on 100 percent of hospital discharge data for FFS beneficiaries from 1992 through 2001. The diabetes measures are based on the 5% Standard Analytic File, and the patient safety measures are limited to 2000 and 2001. We adjusted the measures to a common distribution of age and sex but did not risk-adjust them beyond age and sex. MQMS statistics are descriptive. Results do not indicate the causes of the observed trends and cross-sectional variation.

CMS disseminates MQMS results on its website, [www.cms.hhs.gov](http://www.cms.hhs.gov), in the form of a summary of key findings for each clinical area (MQMS Highlights), full-length reports (MQMS Reports), detailed tables, and technical documentation.

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